AMENDMENTS TO THE CLAIMS

1. (Canceled).

2. (Canceled).

3. (Previously Amended) The method of claim 19 wherein a set of free radicals formed to react with the ammonia are derived from nitrogen oxides, carbon monoxide, hydrocarbons, and water vapor.

4. (Canceled).

5. (Canceled).

6. (Canceled).

7. (Currently Amended) The method of claim 19 further comprising removing particulate matter from the gas stream prior to irradiating the gas stream to form [[the]] free radicals that react with the ammonia in the gas stream.

8. (Currently Amended) The method of claim [[1]] 19 wherein the intensity of the irradiation falls in the range of 100-2,000 microwatts per square centimeter.

9. (Currently Amended) The method of claim 19 further comprising filtering particulate matter from the gas stream and wherein the step of irradiating the gas stream with UV light includes providing a two stage irradiation process where one irradiation stage is employed prior to filtering the particulate matter and the second irradiation stage is employed after filtering the particulate matter.

10. (Canceled).

11. (Canceled).

12. (Canceled).

13. (Canceled).

14. (Canceled).

15. (Canceled).

16. (Canceled).

17. (Canceled).

18. (Canceled).

19. (Currently Amended) A method of removing ammonia from an effluent gas stream comprising:

a. irradiating with ultraviolet light a gas stream produced by an industrial process where the gas stream emitted from the industrial process contains ammonia at concentrations less than 40 ppm;

b. substantially reducing the concentration of the ammonia present in the gas stream emitted by the industrial process by irradiating the gas stream with UV light in the spectral range of 230 to 370 nanometers to cause the photolysis of nitrogen dioxide, ozone and hydrogen peroxide present and/or formed in the gas stream emitted by the industrial process;

c. initiating a set of hydroxyl and hydroperoxy free radical reactions that result in the removal of a hydrogen atom from the ammonia to form an NH_2 radical wherein the initiation of the free radical reaction is a result of irradiating the gas stream with the UV light in the spectral range of 230 to 370 nanometers; and

d. maintaining a NO_x concentration in the gas stream at a concentration level sufficient to maintain in the gas stream the active set of hydroxyl and hydroperoxy free radical reactions.

20. (Canceled).

21. (Canceled).

22. (Currently Amended) The method of claim 19 ~~including~~ further comprising reducing the concentration of the ammonia in the gas stream from an initial concentration of less than 40 ppm by at least 40%.

23. (Currently Amended) The method of claim 19 ~~wherein the hydroxyl and hydroperoxy free radical reactions results in the conversion of NO to NO_2, and~~ wherein the ratio of the NO_2 concentration to the NO concentration is maintained at less than a value of 10 to ensure that the sum of NO and NO_2 is not reduced more than 50%, and to ensure that sufficient NO_2 and NO remain to sustain the free radical reactions that remove ammonia.